

REMARKS

The Advisory Action dated July 27, 2005, has been received and its contents carefully noted. Applicant notes that the Examiner has considered and entered Applicant's Declaration Under 37 C.F.R. §1.131 submitted concurrently on July 17, 2005, but has maintained his position taken in the Final Office Action dated May 17, 2005 that the combination of Durand et al. (US 6,272,467 B1) and Franco (US-2004/0044585 A1) render obvious active claims 100-139 and 176. Applicant respectfully disagrees.

Undersigned counsel telephoned the Examiner to discuss the content of the Advisory Action dated July 27, 2005. Applicant thanks the Examiner for his courtesy and for confirming that the Response After Final Rejection filed July 17, 2005 has been entered into the record. Applicant acknowledges the Examiner's indication that the Examiner was not convinced by Applicant's remarks in Applicant's Declaration Under 37 C.F.R. §1.131 and that further consideration of whether Franco 1 and 2 teach a knowledge base would be required.

This Supplemental Amendment amends the second paragraph on page 53 of the specification to correct an inadvertent omission, amends claims 100-108, 110, 111, 114, and 139, cancels claims 109 and 138, and adds new claims 177 and 178 to the Application. The amendments to independent claim 100 define Applicant's invention with greater particularity, as do the amendments to claim 103 which has additionally been written in independent form. A clean copy of page 53 of the Application which includes the amendment made is attached.

A check in the amount of \$555.00 is attached to cover a small entity first extension fee of \$60, a Request For Continued Examination fee of \$395, and a \$100 fee for writing one claim in excess of three in independent form. No additional claim fee for adding two new dependent claims in excess of 20 total claims is submitted to be due because two claims have been cancelled.

Claims 100-108, 110-137, 139 and 176-178 are now active in this Application as being directed to an embodiment which was elected in responding to a restriction requirement and are all submitted to be in allowable condition for the reasons set forth in the following. Claims 1-28, 48, 83, 109, 138, 159 and 175 have been cancelled. Claims 29-47, 49-82, 84-99, 140-158, and 160-174 are pending in this Application but stand withdrawn as having been non-elected. Upon allowance of elected claims 100-108, 110-137, 139, and 176-178, Applicant authorizes the Examiner to cancel withdrawn claims 29-47, 49-82, 84-99, 140-158, and 160-174 in an Examiner's Amendment to place the Application in allowable condition.

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SUPPORT

Support for the amendment of the second paragraph on page 53 of the Application to change "Figures 4 through ____" to "Figures 4 through 13" is found from the context of that paragraph which refers to "data structures (.e. a database schema)" associated with "the current embodiment". The current embodiment clearly relates to Figures 4 through 13 as discussed in the "Brief Description Of The Drawings" section and in the more detailed discussion of these figures presented later in the Application as filed.

Claim 100 has been amended to recite, "...which contains facts and rules for iteratively convergent problem solving to solve a problem comprised of at least one of construction of representations of at least one of the user, the order, and the provider, and matching of said representations, and which contains facts and rules to be utilized by the system to construct a cascading series of requests for information by the system so that said representations and said matching improve over time." The expressions "representations", "iteratively convergent", and "cascading series of requests for information" find support in the Application as filed in numerous places. By way of example, but not limitation, support is found as follows with reference to the paragraph numbering in Applicant's Published Application.

The expression “representation” as used in claim 100, though not found verbatim in Application as filed, is intended to mean “information that characterizes a person or thing.” This corresponds to the ordinary dictionary definition of “representation” as “something that represents, as: “An image or likeness of something” in this context. Support for “representation” is found in the Application as filed at least in paragraphs [0066], [0071] and [0088] which use the term “attributes” and “selection criteria” as meaning “representation”, as follows:

[0066] “Another aspect of the current invention includes a system and method for gathering information on a **human shopper’s attributes** and on selection criteria.”

[0071] “The total score for a given pair of human shoppers may be the sum of the scores earned by that pair of human shoppers with respect to each **individual selection criterion** in each of the human shopper’s selection criteria sets.”

[0088] “For example, in an employment service, every job applicant may receive a somewhat different test and/or interview dependent upon what is known of the applicant’s requirements and **attributes (i.e. the applicant’s selection criteria set)** and the requirements and attributes of the job position being offered (i.e. the job’s selection criteria set.)” In this paragraph, “selection criteria set” is synonymous with “representation”

The expressions "iteratively convergent" and "cascading series of requests for information" as used in claim 100, though not found verbatim in Application as filed, are closely related concepts. "Iteratively convergent" is intended to mean a repetitious process whose result approaches an acceptable result over time. This corresponds to the ordinary dictionary definition of "iterative" as, "Characterized by or involving repetition, recurrence, reiteration, or repetitiveness" and the ordinary dictionary definition of "converge" as "To approach a limit" in this context. "Cascading series of requests for information" is intended to mean a plurality of requests for information wherein the nature of each subsequent request depends in part on the answers to previous requests. This corresponds to an ordinary dictionary definition of "cascade", "A process that occurs in successive stages, each of which is dependent on the preceding one, and often producing a cumulative effect."

Support for "iterative" is found in the Application as filed at least in paragraphs [0175], [0188], 0348] and [0523-[0524] which state:

[0175] "Two kinds of steps are described herein: 1) "application" steps in which information is entered about a purchaser, an order, a provider or a virtual provider using a questionnaire or other type of data input form and 2) "verification" steps in which **information previously entered may then be verified and other information may be acquired through interviewing and/or testing.**"

[0188] "In addition, a step may be "conditional". When a step is conditional, the step may perhaps only be performed if a certain condition exists at the time the step is reached. For example, **a provider may be asked to take a second skills test if the scores received on the first skills test are higher or lower than a certain threshold value.**"

[0348] "The Status Updating Subsystem may update the "Current Score(s)" field(s) when the Status Updating Subsystem determines that new score data is available for a virtual provider. The Status Updating Subsystem may **check to see if new score data is available** for a virtual provider when the Status Updating Subsystem is invoked at the completion of a step."

[0523] ... "**If additional interviews** are desired, as shown in step 652, appropriate interview requisitions 602 may be made to further the process until a decision is ultimately reached."

[0524] ... "**this iterative process** preferably occurs automatically thereby reducing the amount of human intervention".

Support for the expression "convergent" is found in the following paragraphs [0097], [0404] and [0515]:

[0097] "Answers to questions may produce correction factors that may then be used to correct previously recorded scores for a human shopper. The application of correction factors to previously recorded scores for a human shopper can be handled automatically."

[0404] "In this embodiment, the Score computed in Formula 1 may be a preliminary Score, and the final Score may be determined by applying correction factors. The Correction Subsystem (312) may determine a Final Score (for a particular pair of Selection Criteria Sets--i.e. a pairing of an order and a provider) by multiplying the Preliminary Score by one or more correction factors based on such things as interviewing 311, objective testing 313 and/or reference checking 315, according to the following formula:

Final Score=Score.times.Interview Correction Factor.times.Testing Correction Factor.times.Reference Correction Factor Formula 5".

[0515] ... "Providers may be invited to take a new test or interview in order to reflect both the latest state of their knowledge and the latest questions and answer options. Results of the new test or interview replace the correction factors determined by the previous test or interview respectively."

Similarly, support for "cascading series of requests for information" is found in the Application as filed at least in paragraphs [0066], [0074] and [0384] which state:

[0066] ... "as a user supplies information in the form, application, or questionnaire, further questions and options may be presented to the user based upon the answers to previous questions and also based upon data contained in a relational database (the "knowledge-base")."

[0074] ... "Adaptive data input forms, used for gathering information about human shopper attributes and selection criteria, based upon a knowledge-base. Such forms may be intelligent in that they adapt to obtain information based on a human shopper's prior answers and/or information contained in a knowledge-base."

[0384] "The Intelligent Input Forms Subsystem (304) may create the input forms (e.g. online forms, printed questionnaires, etc.) with which human shoppers provide selection criteria sets. Input forms may be generally referred to as "intelligent" because the information requested, questions asked and multiple-choice options within questions may vary depending on the contents of the Knowledge-base (305) and depending on information provided earlier by the human shopper on the input forms."

Claim 102 has been amended to recite, "... wherein said representations of at least one of the user, the order, and the provider share at least one of symbolism and vocabulary." The

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expression "symbolism" and "vocabulary" are intended to have their ordinary meaning in the context of computer science.

The expression "**shared vocabulary**", though not found verbatim in the Application as filed, finds support at least in paragraph [0402]:

[0402] "A one (1) may be used where there is a match between a particular multiple-choice option within a single question. A zero (0) may be used where there is no such match for that particular option. For example, and continuing with the previous example, a one (1) may be used where the employer seeks expertise in a particular router model, and the provider claims to possess that expertise. Otherwise, a zero (0) may be used where there is no match for that router model."

Similarly, the expression "**shared symbolism**", though not found verbatim in the Application as filed, finds support at least in paragraph [0415] as follows:

[0415] "To score a pairing of Selection Criteria Sets where one set includes multiple-choice data and the other set includes free-text, it is preferred that the scoring occur through **keyword occurrences**. This may be accomplished by computing the occurrence of each keyword found in the first Selection Criteria Set, i.e. the Set which has multiple-choice values. The system may then count the number of occurrences of this keyword within the free text supplied by the other Selection Criteria Set. It may also determine how closely these keywords are clustered together within the free text. The number of occurrences of the keyword, and optionally the degree of clustering of the keyword may be used by the Scoring Subsystem (310a) to compute the "Keyword Occurrence Value"."

New claim 177 recites, " ..., wherein said representations of at least one of the user, the order, and the provider respectively contain at least one attribute, and wherein each attribute of said at least one attribute is constructed independently from any other attribute of said at least one attribute using said facts and rules for iteratively convergent problem solving." Support for "attributes" is found in the Application as filed at least in paragraphs [0066] and [0088] as follows:

[0066] "Another aspect of the current invention includes a system and method for gathering information on a **human shopper's attributes** and on selection criteria."

[0088] "For example, in an employment service, every job applicant may receive a somewhat different test and/or interview dependent upon what is known of the applicant's requirements and **attributes (i.e. the applicant's selection criteria set)** and the requirements and attributes of the job position being offered (i.e. the job's selection criteria set.)"

New claim 178 recites, "The system of claim 103, wherein said requests for information continue until an acceptable result is obtained". Support for new claim 178 is found in the Application as filed and may be inferred from various paragraphs, for example, at least paragraphs [0188], [0515] and [0523] reproduced below.

[0188] "In addition, a step may be "conditional". When a step is conditional, the step may perhaps only be performed if a certain condition exists at the time the step is reached. For example, a provider may be asked to take a second skills test if the scores received on the first skills test are higher or lower than a certain threshold value."

[0515] "If the knowledge-base has been updated by the addition of new questions or answer options within the prior month, notice may be sent to providers who have virtual providers that have related order Categories, Technologies or Products relevant to the new questions and/or answer options. Such notice may only be sent if the provider has not taken a new test or interview within the prior month for the same order, because in this case, the provider's test or interview would likely have reflected the update. Providers may be invited to take a new test or interview in order to reflect both the latest state of their knowledge and the latest questions and answer options. Results of the new test or interview replace the correction factors determined by the previous test or interview respectively."

[0523] "Additional interviews may be considered as shown in step 624. If it determined that no additional interviews are necessary, as shown in step 646, e.g., because the interviews up to that time convince a purchaser that the provider should be hired, a post interview process 648 may occur. Appropriate information may be stored in general tracking and statistical database 650. If additional interviews are desired, as shown in step 652, appropriate interview requisitions 602 may be made to further the process until a decision is ultimately reached."

The rejection of claims 100-139 under 35 U.S.C. §103(a) as being unpatentably obvious over Durand et al. (US 6,272,467 B1) in view of newly-cited and newly-applied Franco (US-2004/0044585 A1) is respectfully traversed on the grounds that newly-cited and newly-applied Franco (US-2004/0044585 A1) may not be considered a proper reference against claims 100-139, and 176 for the reasons given in the Declaration Under 37 C.F.R. §1.131.

Franco US-2004/0044585 A1 has been applied as a secondary reference against the claims and lists the following Related Applications information:

"This application claims the benefit of U.S. Provisional Application No. 60/408,219, filed on September 3, 2002, and this application is a **continuation-in-part** of U.S. Application No. 09/817,535, filed on March 26, 2001, which claims the benefit of U.S. Provisional Application No. 60/225,393, filed on August 15, 2000, all of which applications are hereby incorporated by reference. [emphasis added]"

To facilitate discussion, Applicant refers herein to:

Franco 1 = U.S. Provisional Application No. 60/225,393, filed on August 15, 2000;

Franco 2 = U.S. Application No. 09/817,535, filed on March 26, 2001;

Franco 3 = U.S. Provisional Application No. 60/408,219, filed on September 3, 2002; and

Franco 4 = U.S. Published Application No. US-2004/0044585 A1, published in March, 2004.

Applicant notes that Franco 3 and 4 were both filed after Applicant's complete application date of October 8, 2001 and that Franco 3 is a continuation-in part of Franco 1 and 2 which pre-date Applicant's complete application filing date of October 8, 2001. The new matter added to Franco 3 and 4 includes mention of a "knowledge base" since Franco 1 and 2 do not mention a "knowledge base". Thus, Applicant submits that the Examiner's reliance on Franco 4 as a reference for a "...teaching that it is well known in the art to have a system (See for example Fig. 2) utilizing a knowledge base 212 that is substantially separate from user information 220 and substantially separate from program code 202 that references the knowledge base either directly or indirectly." is not well founded.

Franco 4 may not be considered a proper reference against Applicant's claims.

Applicant's Declaration Under 37 C.F.R. §1.131 sought to eliminate Franco (US-2004/0044585 A1) [hereinafter Franco 4] as a reference on the grounds that Franco 4 and its Provisional Application (60/408,219)[hereinafter Franco 3] were both filed after Applicant's complete application date of October 8, 2001. Applicant drew the Examiner's attention to the fact that Franco 3 and 4 are Continuation-In-Part Applications which added the disclosure of "a knowledge base" not previously disclosed in Franco's earlier Applications. Based on Applicant's carefully study of Franco 1 and 2, Applicant argued that Franco 1 and 2 made no disclosure of a "knowledge base" within Applicant's claims and presented a discussion of why this was considered to be the case. For this reason, Applicant submitted that Franco 4 may not be considered to be a reference against Applicant's claims. Applicant affirms that position.

Claims 100 and 103 are submitted to clearly avoid the prior art of record by bringing together three existing areas of technology in a novel and non-obvious way: (1) computer

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systems used for matching human beings, (2) iteratively convergent problem solving, and (3) knowledge base technology that controls a cascading series of requests for information.

According to the technical definition of record, a "knowledge base" is a database that contains facts and rules for problem solving. In the pertinent art, such problem solving is typically handled by means of problem solving software which calls upon the knowledge base. Such problem solving software may be called an "expert system", an "inference engine", or most broadly "program code that references the knowledge base".

The term "problem solving" is so broad as to be meaningless technically; almost any computer system may be said to be directed to "problem solving". What separates knowledge base technology from other computer technology is the way that information about how to solve the problem is stored. In most computer systems, facts are stored in a database while the rules (instructions for gathering of facts or arriving at a result from those facts) are stored in the program code. The use of a knowledge base, wherein rules of this kind are also stored in the knowledge base, differentiates knowledge base technology from most other computer systems.

However, there are some computer systems in the pertinent art which do store both facts and rules in a database and which could therefore be called a knowledge base according to the definition of knowledge base referred to above. Examples of this are found in the Franco Patent (Franco 1 and 2) in the returns module and possibly in the scheduling module. Where the present invention as claimed differs from Franco is in the use of "iteratively convergent" problem solving in conjunction with a knowledge base. This form of problem solving is typically performed as follows:

In iteratively convergent problem solving, the system passes through a plurality of cycles (iterations). During each cycle, the system requests additional information from the users (or in some case from the environment.) Information acquired in this way and the results computed from that acquired information therefore converges on an acceptable result through multiple iterations. In the present invention as claimed, the knowledge base contains both the facts and rules for carrying out these multiple cycles of information acquisition.

The Examiner might argue that Franco 1 and 2 may be read to include a knowledge base, but Applicant respectfully disagrees on the grounds that this is such a stretch of imagination that it would not be obvious to one of ordinary skill in this art but, rather, would constitute inventive activity. However, Applicant submits that it is clear that the use of a knowledge base in combination with iteratively convergent problem solving (see claims 100 and 103) is not at all taught or suggested by Franco 1 and 2. In short, since Franco 1 and 2 in no way teach iteratively

convergent problem solving, Franco 1 and 2 is submitted to not teach prior art of any relevance to the claims of the present invention.

Applicant acknowledges that iteratively convergent problem solving using a knowledge base is known in the prior art. For example, expert systems of various kinds teach iteratively convergent problem solving in conjunction with a knowledge base. Applicant further acknowledges that matching systems are known in the prior art.

The present invention as claimed is submitted to differ from the expert systems of the prior art and the matching systems of the prior art in a novel and non-obvious way. The present invention applies iteratively convergent problem solving in combination with knowledge base technology to the problem of matching human shoppers. Prior art matching systems employ portions of this technology but do not apply iteratively convergent problem solving in combination with knowledge base technology to the problem of matching human shoppers as in Applicant's claims 100 and 103. Applicant's combination, moreover, is submitted to be non-obvious as finding no suggestion in the prior art matching systems, e.g., those of Durand et al., Puram et al., and Franco 1 and 2.

In conclusion, Applicant submits that claim 100 and 103, and the claims depending therefrom, avoid the prior art by bringing together three existing areas of technology in a novel and non-obvious way: (1) computer systems used for matching human beings, (2) iteratively convergent problem solving, and (3) knowledge base technology that controls a cascading series of requests for information. No prior art known to Applicant combines these three elements or suggests such a combination so that Applicant submits that the prior art neither teaches nor suggests the present invention as claimed.

In view of the foregoing, Applicant submits that the rejection of record is not well founded because Franco 4 is not a proper reference and should not be maintained. Applicant therefore requests that the rejection of record be reconsidered and withdrawn, that claims 100-108, 110-137, 139, and 176-178 be allowed, and that the Application be found to be in allowable condition.

Should the Examiner not find the Application to be in allowable condition or believe that further conference would be of value in expediting the prosecution of the Application, Applicant requests that the Examiner telephone undersigned Counsel to discuss the case and afford Applicant

an opportunity to submit any further response that might advance prosecution and place the Application in allowable condition.

Respectfully submitted,

Date: September 19, 2005


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In addition to the foregoing individual enumerated items, combinations of these items also represent an advance over existing systems and methods. Other advances are also provided by the current embodiment as described herein.

6.2.2.8 Data Structures

Typical data structures (i.e. a database schema) associated with the current embodiment are now discussed with reference to Figures 4 through 13. For simplicity of illustration, the data structures are divided into relational databases. Each sub-figure (e.g. Figure 4.1) illustrates one relational database table. Each item in each sub-figure (e.g. "Staff ID" in Figure 4.1) is a single column (also known as "field") in the database table described by that sub-figure, though the columns are shown vertically.

It should be noted that different information may be contained in the various databases of the current invention, including other information not specifically discussed herein. Accordingly, the current invention is not limited to the exact database configurations discussed below.

Each data table preferably contains a unique record ID. Most data tables also preferably include a field that relates that data table to another data table. The following discusses the meaning and use of the various tables and fields in this embodiment. In this document, the word "record" is used to indicate each row within a data table.

Practitioners of the art will recognize that different embodiments may have more or less levels of data specificity within the database scheme and related programming. Practitioners of the art will also recognize that essentially the same